

L1430655015
Bemis Company Inc.
ILD 006215727
SF/HRS



CERCLA Site Inspection Prioritization Report



**Illinois Environmental
Protection Agency**

2200 Churchill Road
P. O. Box 19276
Springfield, IL 62794-9276

EPA Region 5 Records Ctr.



293435

TABLE OF CONTENTS

SECTION	VOLUME 1	PAGE
1	Site Background.....	1.
	1.1 Introduction.....	1.
	1.2 Site Description.....	1.
	1.3 Site History.....	2.
	1.4 Regulatory Status.....	3.
2	SIP Activities.....	4.
	2.1 Reconnaissance Activities...	4.
	2.2 Representative Interviews...	4.
	2.3 Sampling Activities.....	5.
3	Site Sources.....	6.
	3.1 Source Definition.....	6.
4	Migration Pathways.....	7.
	4.1 Soil Exposure Pathway.....	7.
	4.2 Surface Water Pathway.....	7.
	4.3 Groundwater Pathway.....	8.
	4.4 Air Pathway.....	9.
FIGURES	1. Site Location Map.....	10.
	2. Site Topography Map.....	11.
	3. Site Map.....	12.
TABLES	1. Sample Location Descriptions.	13.
	2. Key Sample Summary.....	14.
APPENDIX	1. SSI Site Map and Analytical Data	
	2. Target Compound List	
	3. Data Qualifiers	

0220-
WPA
C

SECTION I. SITE BACKGROUND

1.1 INTRODUCTION

This section includes information obtained over the course of the formal Site Investigation and previous Illinois Environmental Protection Agency (IEPA) activities involving this site. Previous Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) activities for this site consisted of a Preliminary Assessment of the site in 1985 by the IEPA and a Screening Site Inspection in 1989 by Ecology and Environment, Inc. for the United States Environmental Protection Agency (USEPA).

1.2 SITE DESCRIPTION

The site is located in Peoria, Illinois approximately 1/8 mile east from the intersection of Sloan Street and Adams Street. The Bemis site is presently owned by two independent companies; Bemis Company, Inc. occupies 13.7 acres on the south side of the property and Ivex owns 33.7 acres on the north side of the property. The legal description of the site would be described as portions of the central part of Section 35, Township 9 North, Range 8 East of the Third Principal Meridian, Peoria County, Illinois (Figure 1).

The site is located in a urban-industrial setting along the western bank of the Illinois River. The topography slopes gently toward the Illinois River (Figure 2). The geology of the area, based upon IEPA records, consists of sandy silt to sandy loams underlain by the Sankoty Sand Member. The site is prone to frequent

flooding.

1.3 SITE HISTORY

A Bemis representative stated that he thought the property was owned by a brewery prior to 1910. IEPA records indicate that the site facility began operations in 1910 as Bemis Brothers Bag Company. Operations included a paper mill, a coating mill, and a multi-wall bag converting plant. In the past, power requirements were met by the use of a coal fired boiler, with an oil fired boiler used as a standby.

During an IEPA investigation in 1973 it was discovered that Bemis Company was landfilling a portion of its fly ash into a pit located on the northern part of the site. At the time of the IEPA inspection the company was producing 20,000 cubic feet of fly ash annually. In 1973 Bemis Company was granted an air permit, in 1977 renewal of the permit was denied citing sulfur dioxide emissions. Currently both Bemis and Ivex burn natural gas for fuel.

In 1985 Bemis Company sold its paper mill and coating mill to Petratex Paper Company. In 1987 Petratex Paper Company went bankrupt and in 1988 Ivex purchased the mills and commenced operations. Currently Bemis Company owns and operates the multi-wall bag converting plant at the site. The plant contains a plate-making department that does printing with water based ink, and a converting operation that assembles the bags for bulky products such as dog food. Bemis Company currently employs about 200 workers.

Ivex currently owns and operates the paper mill and coating mill at the site. In these operations waste paper is purchased and recycled into paper that is used for industrial packaging. Ivex employs approximately 55 workers.

Investigative activity under CERCLA began in 1985 when the IEPA conducted a Preliminary Assessment of the site. As a result of that assessment, a Screening Site Inspection (SSI) was conducted for the USEPA by Ecology and Environment, Inc. in 1989. During this investigation samples were collected from the soil and from nearby industrial wells (Appendix 1.). The analytical results of these samples revealed PCB's in the soil above program established removal action levels (RAL's) and significantly above background, benzo-a-pyrene at levels above the Superfund Chemical Data Matrix (SCDM) human health concern benchmarks and significantly above background, and elevated levels of other compounds and analytes.

1.4 REGULATORY STATUS

Both the Bemis Company and Ivex are listed as small quantity generators under the Resource Conservation and Recovery Act (RCRA) and are therefore not subject to that programs corrective action authority. The facility is not subject to the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), Atomic Energy Act (AEA), or Uranium Mill Tailings Radiation Control Act (UMTRCA).

SECTION 2. SIP ACTIVITIES

2.1 RECONNAISSANCE ACTIVITIES

A review of the 1989 Ecology and Environment Screening Site Inspection Report indicated that a more detailed investigation would be required in order to evaluate the site. A Reconnaissance Visit was conducted on June 12, 1995 by Mark Densmore from the IEPA Site Assessment Unit to make observations and determine sampling locations. Also present during the reconnaissance was Rolla Miller, Plant Engineer with Bemis Company and Larry Rohman, Manager of Engineering with Ivex.

During the reconnaissance the locations of sampling points from the 1989 Ecology and Environment site inspection were examined. It was observed that flooding had recently occurred along the eastern side of the site, up to some of the buildings, and some of the old sampling points had been inundated by flood waters. The most likely areas of surface water drainage to the river were noted. The fly ash piles in the northern part of the site were examined, most of these are currently covered by vegetation.

2.2 REPRESENTATIVE INTERVIEWS

Prior to the Site Inspection Prioritization (SIP) CERCLA sampling event, interviews were conducted with Rolla Miller of Bemis Company and Larry Rohman of Ivex. During these discussions Bemis Company and Ivex were given the option of collecting split

samples during the site inspection, which they chose not to do. Notification letters were sent to Bemis Company and Ivex prior to the sampling event.

2.3 SAMPLING ACTIVITIES

The IEPA sampling team arrived at the site on July 12, 1995 at 9:40 am. The sampling team consisted of Mark Densmore, Ken Corkill, Brad Taylor and Ted Prescott. The sampling team was accompanied by Rolla Miller of Bemis Company and Larry Rohman of Ivex. The sampling plan consisted of eight soil samples and four sediment samples, with one soil sample and one sediment sample being a duplicate. The samples were taken using decontaminated stainless steel spoons and augers. All samples were analyzed for the Target Compound List (TCL) (Appendix 2.). Organic compounds were analyzed by Southwest Labs of Oklahoma and inorganic compounds were analyzed by Chemtech Consulting Group, both laboratories were under contract with U.S. EPA Region 5. All analytical results were then validated by U.S. EPA Region 5. All sample locations are shown in Figure 3 and described in Table 1. Analytical results from the sampling event are shown in Table 2. The analytical results for the soil samples are compared to human health based benchmarks from the Superfund Chemical Data Matrix (SCDM). Analytical results from the sediment samples were compared to the Ontario Sediment Guide for ecological effects.

3. SITE SOURCES

3.1 SOURCE DEFINITION

CONTAMINATED SOIL

During the CERCLA SSI PCB concentrations exceeding RAL's were discovered in the soil on the Ivex property in the east-central part of the site. Since this area had been inundated by flood water on at least two occasions since the SSI, this area was re-sampled during the CERCLA SIP. The analytical results from the SIP showed PCB (specifically Arochlor 1260) concentrations in excess of the removal action limit of soil for one of the sample locations and above the SCDM benchmark in three nearby sample locations. This area also contains concentrations of benzo-a-pyrene and Dieldrin above the SCDM benchmark. Based upon the SIP sample locations the area of contaminated soil is about 7500 square feet. Additional sampling might delineate a larger area of contamination.

The fly ash samples analyzed did not contain concentrations of any compounds or analytes on the Target Compound List above SCDM benchmarks or significantly above soil background levels.

SECTION 4. MIGRATION PATHWAYS

4.1 SOIL EXPOSURE PATHWAY

Access to the site is limited since the property is fenced, except for the eastern side which is bordered by the Illinois River. PCB contaminated soil occupies an area of about 7500 square feet located around the east-central part of the site, on the Ivex property. Also located in that area are benzo-a-pyrene and Dieldrin contamination above SCDM benchmarks. People could come into contact with the soil through areas of stressed vegetation or through an unpaved access road to an Ivex loading dock. The most likely people to come in contact with the contaminated soil are the 255 onsite workers.

4.2 SURFACE WATER PATHWAY

The site slopes toward the east-southeast in the direction of the Illinois River. There are few well defined drainage paths on the site. The most prominent drainage is a small shallow ditch that goes along the north side of a garage and then turns north and stops. A berm has been built up along the eastern boundary of the site to cut down on flooding. The berm has several drainage pipes built through it to allow water to drain from the site into the river. The Illinois River borders the eastern side of the site and despite the berm the site floods often. The most recent flood was a short time before the SIP sampling event and the flood waters reached the eastern part of the Ivex buildings.

Since the area of PCB, benzo-a-pyrene and Dieldrin contaminated soil is within the area flooded, the area of contaminated soil is considered a Probable Point of Entry (PPE) of contaminants into the Illinois River. The entire 15 mile target distance is within the Illinois River. There are no sensitive environments or wetlands nearby which are likely to be impacted by the site. There are no surface water intakes within 15 miles downstream from the site. The Illinois River is considered ^{or} fishery.

4.3 GROUNDWATER PATHWAY

The geology of the area consists of unconsolidated glacially and fluviially derived sands, silts and gravels. The unconsolidated deposits are underlain by the Sankoty Sand Member. The direction of shallow groundwater flow is not documented but is assumed to follow the surface topography and flow toward the Illinois River (in a east-southeast direction). Since the areas of soil contamination are not lined it is conceivable that the shallow groundwater could become contaminated.

The nearest potable water well is a municipal water well 2500 feet north from the site. During the 1989 CERCLA Screening Site Inspection two onsite industrial wells were sampled. Levels of trichloroethene were found in the water above SCDM benchmarks for drinking water. But the wells were not used for drinking and elevated levels of trichloroethene were not found in the onsite soil samples. Since other facilities in the area could be the source for the trichloroethene it was not attributed to the site

during that time.

4.4 AIR PATHWAY

The area of soil contamination is mostly vegetated although there were patches of stressed or no vegetation. Trucks drive along an unpaved drive through the area of contamination to access the Ivex loading dock and the dust stirred up there is probably a particulate hazard for the 255 onsite workers.

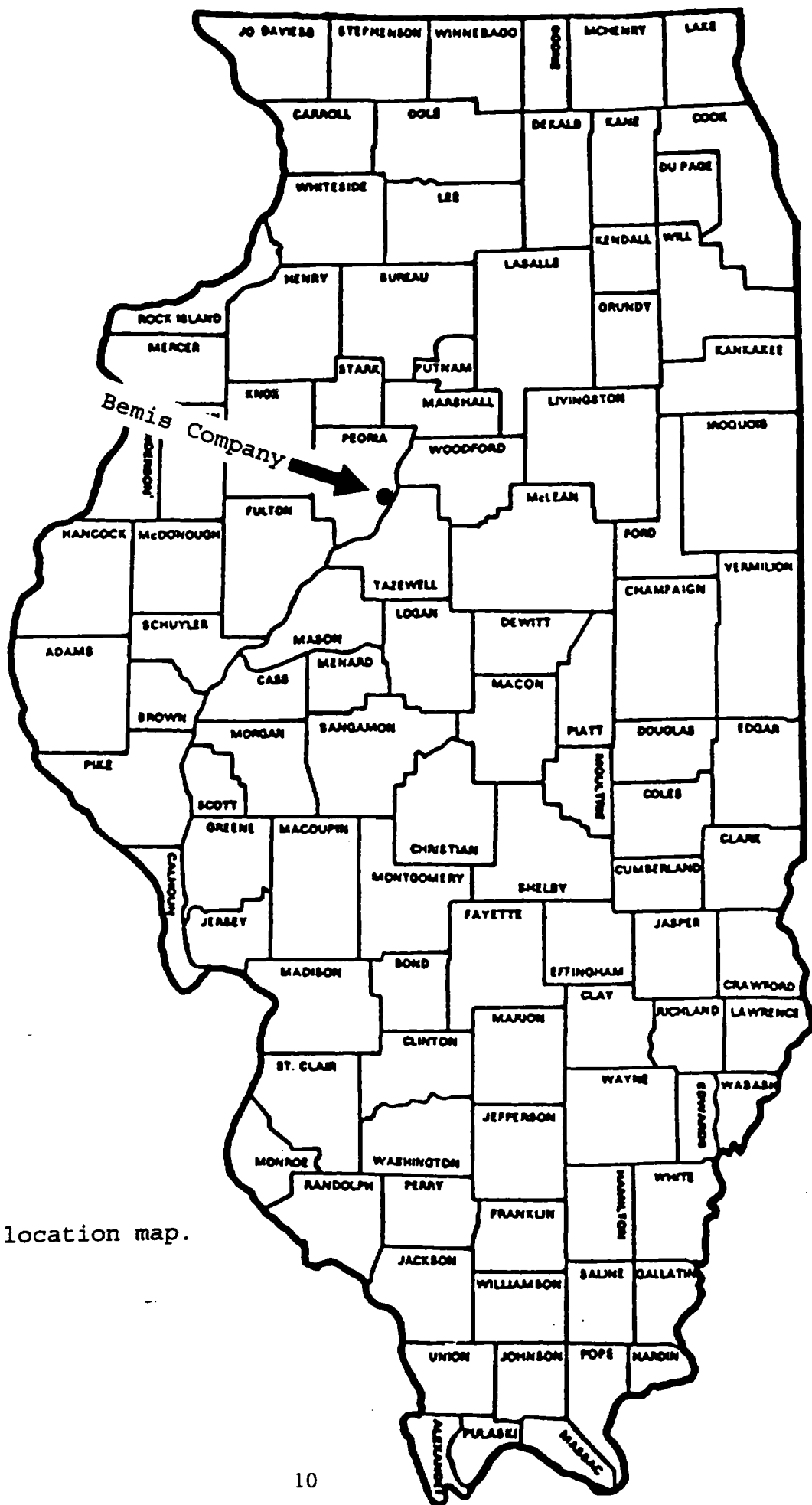
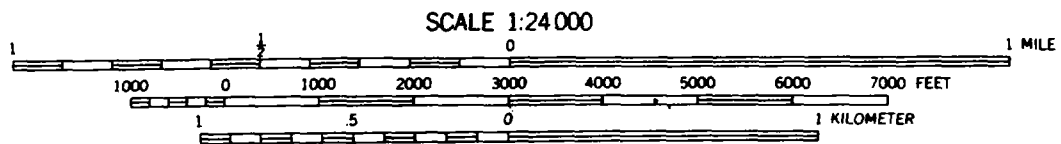
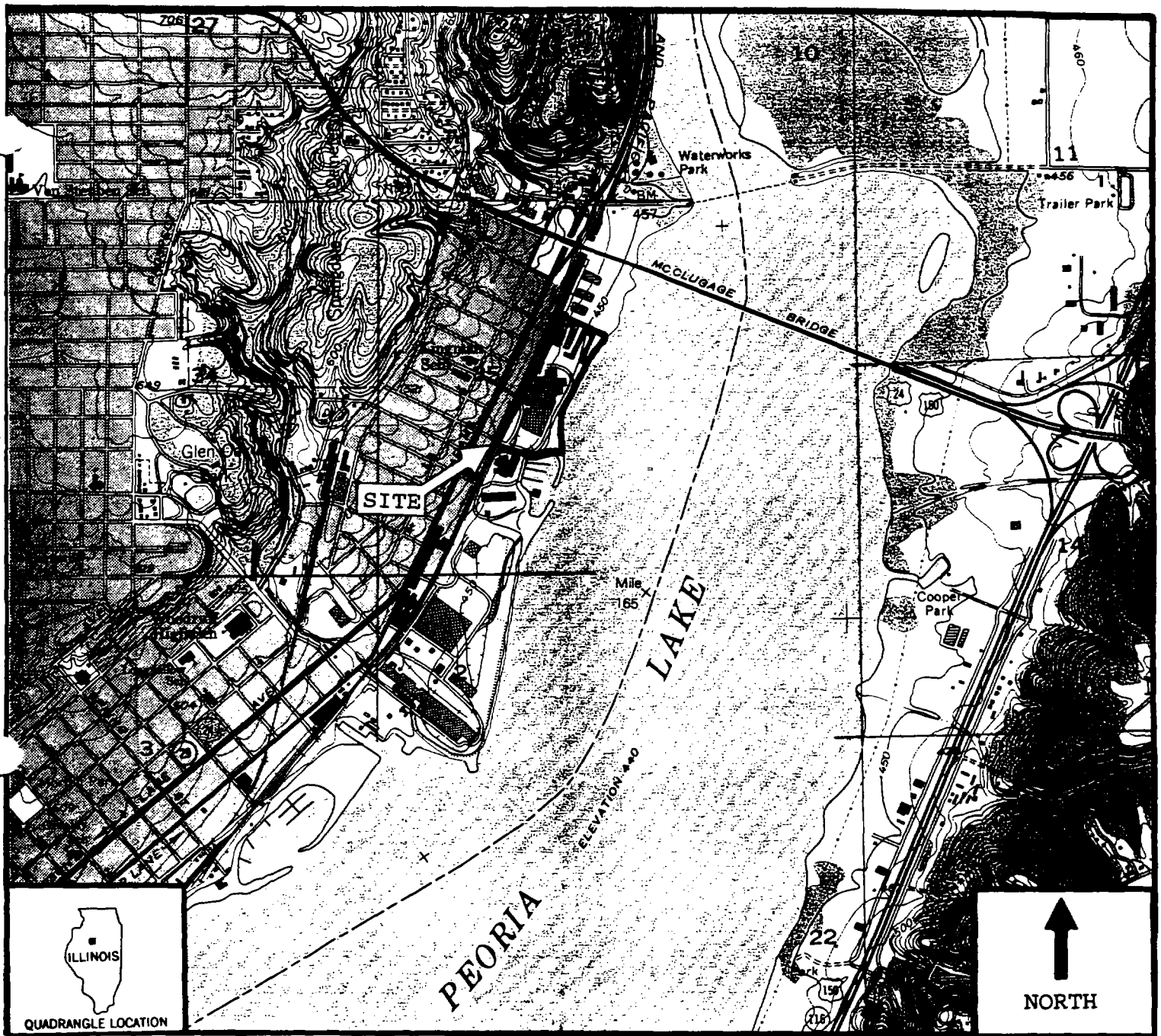


Figure 1. Site location map.



CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

Figure 2. Site topography map.

Figure 3. Site map showing 1995 SIP sample locations.

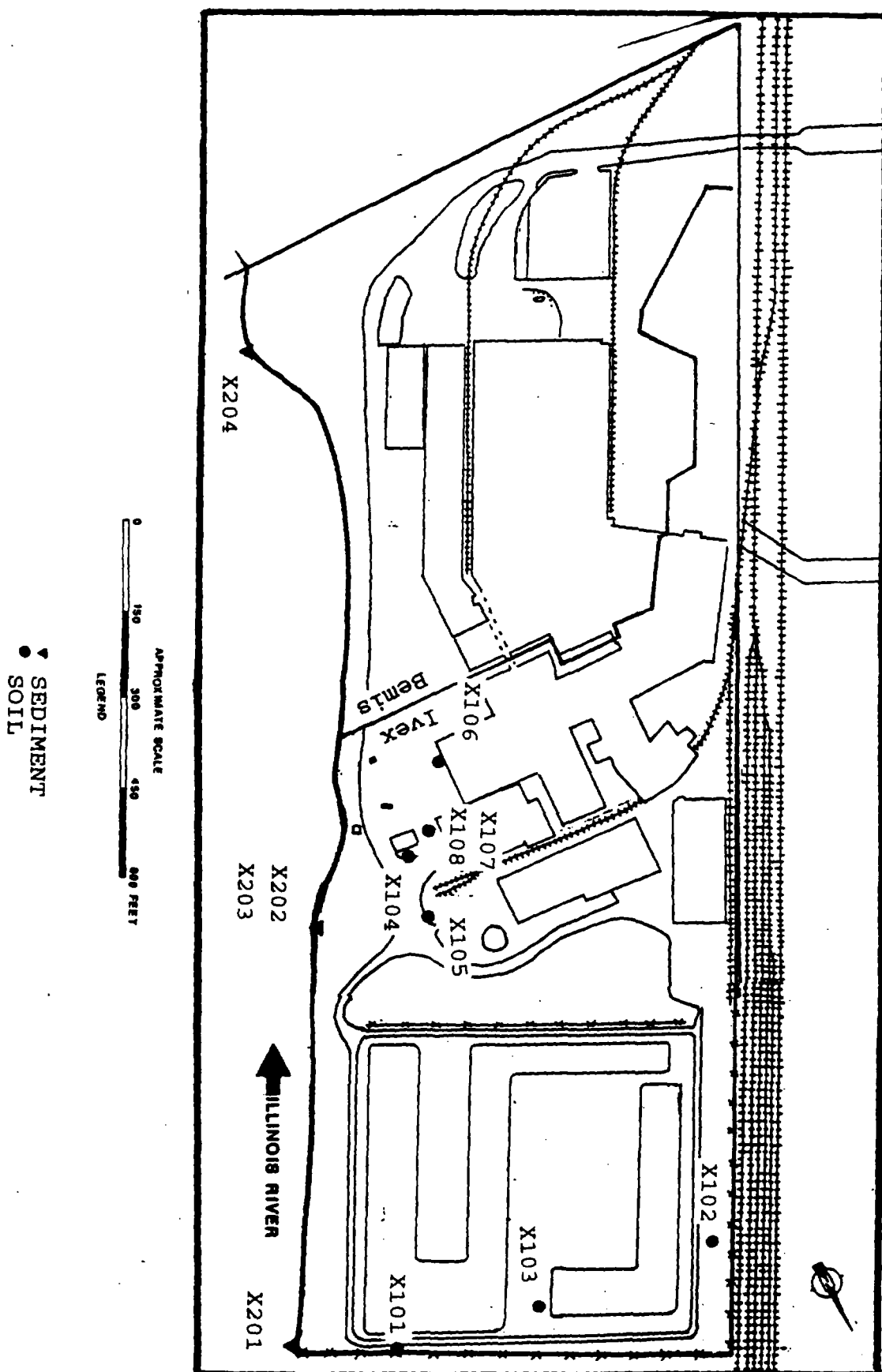


TABLE 1. SAMPLE LOCATION DESCRIPTIONS

SAMPLE	DEPTH	APPEARANCE	LOCATION
X101	0-6"	Dark brown gravelly loam.	Soil background sample taken 550' southeast from PW1 along the fence bordering the northeast part of the site.
X102	18"	Black fine grained fly ash.	Sample taken 181' southwest from PW2 from a fly ash pile.
X103	18"	Black fine grained fly ash.	Sample taken 69' southeast of fence bordering the northeast border of the site.
X104	0-6"	Dark brown	Soil sample taken 3' north of and 8' east from the garage in a shallow drainage ditch.
X105	0-6"	Dark brown silty loam.	Soil sample taken 118' north of northwest corner of the garage.
X106	0-6"	Dark brown sandy loam.	Soil sample taken 40' north of the southeast corner of building Ivex building #3.
X107	0-6"	Dark brown gravelly loam.	Soil sample taken 28' east of the warehouse and 31' west from the southwest corner of the garage.
X108	-----Duplicate of sample X107-----		
X201	0-6"	Brown silty sand.	Sediment sample taken at the confluence of the west bank of the Illinois River and the northeast site boundary fence.
X202	0-6"	Black-brown sandy silt with gravel.	Sediment sample taken 52' east of outfall draining Ivex property along the west bank of Illinois River.
X203	-----Duplicate of X202-----		
X204	0-6"	Black silty sand, organic material.	Sediment sample taken 21' east from outfall draining Bemis property along the west bank of the Illinois River.

TABLE 2. KEY SAMPLE SUMMARY

SAMPLING POINT PARAMETER	X 101 SOIL BACKGROUND	X 102 SOIL	X 103 SOIL	X 104 SOIL	X 105 SOIL	X 106 SOIL	X107 SOIL	X108 SOIL
VOLATILES (ppb)								
Chloromethane	11.0 U	67.0	270.0 J	15.0 J	-	-	-	-
Bromomethane	11.0 U	11.0 J	34.0 J	-	3.0	1.0 J	1.0	-
Chloroethane	11.0 U	-	-	43.0	-	-	-	-
Methylene Chloride	11.0 U	63.0	150.0	-	39.0	22.0	23.0	-
Acetone	11.0 U	-	230.0	-	-	-	-	-
Toluene	2.0 J	57.0	-	20.0	13.0	11.0 J	12.0 J	6.0 J
Tentatively Identified Compounds (TIC's)								
Trichloromono-fluoromethane			47.0 NJ		9.0 NJ			
Hexane	14.0 NJ			11.0 NJ	15.0 NJ	6.0 NJ	6.0 NJ	7.0 NJ
Cyclohexane								
Cyclohexane, methyl-	13.0 NJ	10.0 NJ	63.0 NJ	12.0 NJ		15.0 NJ	10.0 NJ	8.0 NJ
Cyclohexane, ethyl-			400.0 NJ					
Number of TIC's without CAS NO.	6	4	8	3	1			1
SEMIVOLATILES (ppb)								
Phenanthrene	34.0 J	38.0 J	-	1400.0	3300.0 D	470.0	5600.0 D	3700.0 D
Fluoranthene	75.0 J	-	-	-	6600.0 D	630.0	14000.0 D	11000.0 D
Pyrene	66.0 J	-	-	-	6300.0 D	60.0	7700.0 D	6600.0 D
Buylbenzylphthalate	360.0 U	-	-	-	1400.0	-	8100.0 D	1000.0 JD
Benzof(a)anthracene	37.0 J	-	-	1700.0	3200.0 D	370.0 J	4100.0 D	4200.0 D
Chrysene	54.0 J	-	-	2300.0	4500.0 D	500.0 D	5000.0 D	5000.0 D
Benzof(b)fluoranthene	33.0 J	-	-	2700.0	5000.0 D	400.0	5100.0 D	6700.0 D
Benzof(k)fluoranthene	46.0 J	-	-	1900.0	4800.0 D	470.0	4800.0 D	4600.0 D
Benzof(a)pyrene	46.0 J	-	-	2200.0	4200.0 D	470.0	4700.0 D	4600.0 D
Indol(1,2,3)pyrene	43.0 J	-	-	2700.0	3900.0 D	460.0	5100.0 D	4500.0 D
Dibenz(e,h)anthracene	360.0 U	-	-	800.0	1900.0	160.0 J	1700.0	1800.0
Benzof(g,h,i)perylene	43.0 J	-	-	2700.0	3600.0 D	430.0	4800.0 D	4400.0 D
Tentatively Identified Compounds (TIC's)								
.gamma.-Silsesol	660.0 NJ							
3-Fluor-2-one, 4-methyl-		220.0 NJ/A	250.0 NJ/A					
Benzaldehyde			160.0 NJ					
Naphthalene, 1-methyl-				150.0 NJ		610.0 NJ		
9,10-Antroacene				340.0 NJ				
7H-Benz[de]anthracen-7-one				480.0 NJ				
Benzof(e)pyrene				2100.0 NJ				
Perylene				600.0 NJ				
Sulfur, mol (S)					1800.0 NJ			
Benzene, pentachloro-								
9,10-Antroacene							460.0 NJ	
Number of TIC's without CAS NO.	14	3	3	26	16	26	29	32

SITE NAME: BEMIS COMPANY, INC.
 ILD NUMBER: 008215727

TABLE 2. KEY SAMPLE SUMMARY

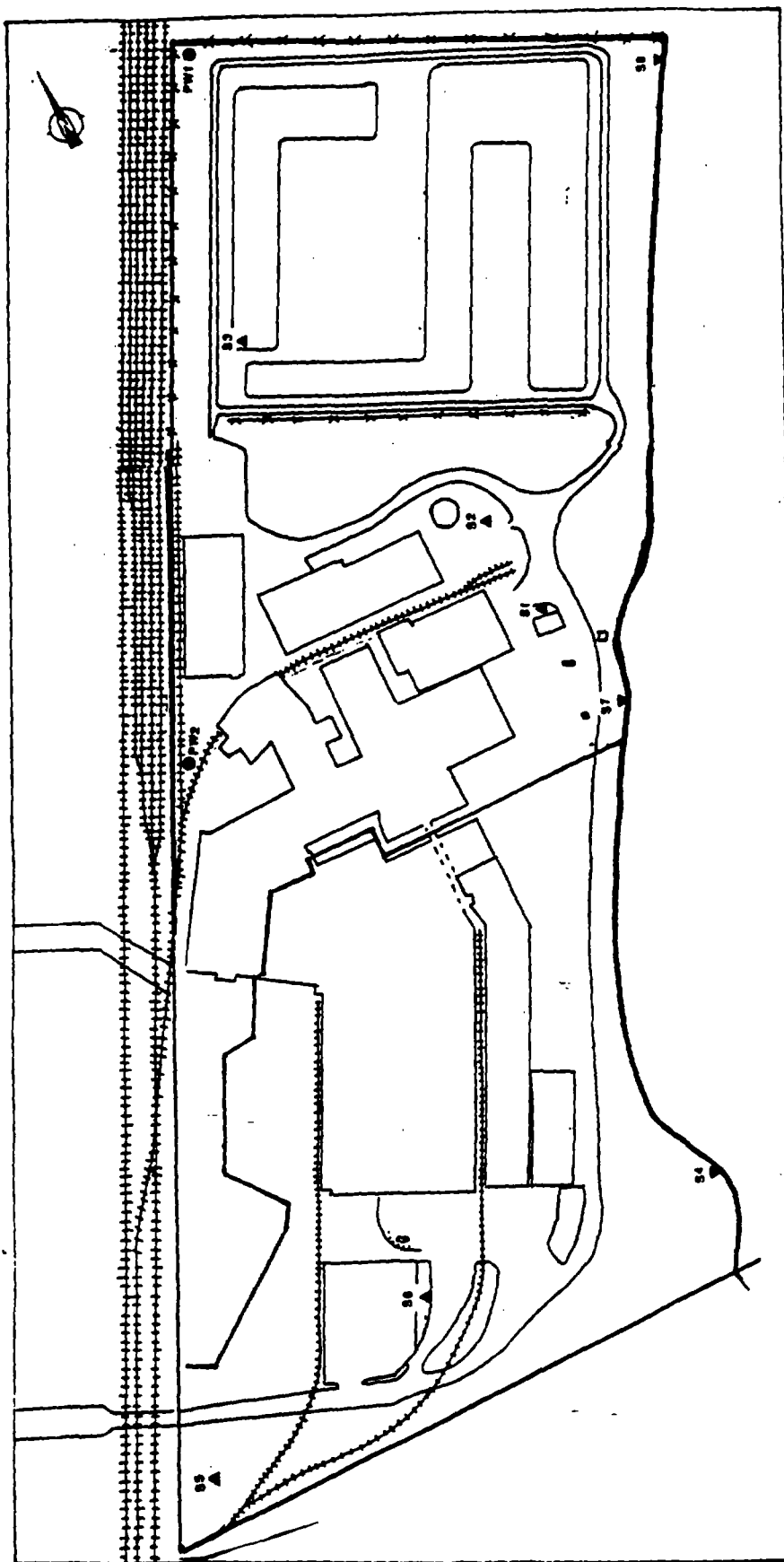
SAMPLING POINT PARAMETER	X 101 SOIL BACKGROUND	X 102 SOIL	X 103 SOIL	X 104 SOIL	X 105 SOIL	X 106 SOIL	X107 SOIL	X108 SOIL
PESTICIDES (ppb)								
Dieldrin	16.0 JP	-	-	45.0 DPJ	22.0 P	5.6 DPJ	980.0 PX	1300.0 PX
4,4'-DDE	16.0 U	-	-	23.0 DPJ	15.0 P	7.0 DPJ	380.0 PX	380.0 PX
Endrin	16.0 U	-	-	-	- PE	90.0 DP	-	-
Endosulfan II	15.0 DPJ	-	-	650.0 DPX	73.0 DP	100.0 DP	-	-
4,4'-DDD	16.0 U	-	-	90.0 DJ	-	16.0 DPJ	900.0 PX	1100.0 PX
Endosulfan sulfate	7.6 DPJ	-	-	-	52.0 P	32.0 DPJ	-	-
4,4'-DDT	36.0 DP	-	-	-	140.0 D	310.0 D	-	-
Endrin Ketone	16.0 U	-	-	-	40.0 P	-	-	-
Endrin aldehyde	24.0 DP	-	-	1300.0 DX	110.0 D	220.0 DP	-	-
alpha-Chlorodane	9.3 U	-	-	14.0 DPJ	-	2.1 DPJ	280.0	330.0 P
gamma-Chlorodane	9.3 U	-	-	-	40.0 P	5.5 DPJ	52.0 PJ	-
Aroclor-1260	860.0 DC	-	-	17000.0 DPC	3600.0 PC	3200.0 DPC	310000.0 DPC	110000.0 DPC
INORGANICS (ppm)								
Lead	23.2	101.0	137.0	86.3	65.7	360.0	178.0	162.0
Zinc	155.0	757.0	1160.0	230.0	5220.0	525.0	361.0	480.0

SITE NAME: BEMIS COMPANY, INC.
 ILD NUMBER: 006215727

TABLE 2. KEY SAMPLE SUMMARY

SAMPLING POINT PARAMETER	X201 SEDIMENT BACKGROUND	X202 SEDIMENT	X203 SEDIMENT	X204 SEDIMENT
VOLATILES (ppb)				
Methylene Chloride	13.0 U	20.0	29.0	26.0
Acetone	38.0	—	56.0 B	74.0 B
Tentatively Identified Compounds (TIC's)				
Hexane			15.0 NJ	
Number of TIC's without CAS NO.		2	1	2
SEMIVOLATILES (ppb)				
2-Methylnaphthalene	34.0 J	400.0 J	260.0 J	170.0 J
Acenaphthylene	570.0 J	54.0 J	—	—
Fluorene	430.0 U	78.0 J	94.0 J	240.0 J
Phenanthrene	180.0 J	1100.0	860.0	2200.0
Anthracene	38.0 J	170.0 J	180.0 J	520.0
Fluoranthene	360.0 J	1600.0	1400.0	3100.0
Pyrene	260.0 J	890.0	970.0	2600.0
Benzo(a)anthracene	180.0 J	400.0 J	300.0 J	1400.0
Chrysene	180.0 J	450.0 J	440.0 J	1600.0
Benzo(b)fluoranthene	140.0 J	320.0 J	230.0 J	1400.0
Benzo(k)fluoranthene	170.0 J	250.0 J	240.0 J	1000.0
Benzo(a)pyrene	170.0 J	240.0 J	210.0 J	1300.0
Indo(1,2,3)pyrene	120.0 J	170.0 J	110.0 J	880.0
Dibenz(a,h)anthracene	37.0 J	51.0 J	44.0 J	220.0 J
Benzo(g,h)perylene	150.0 J	160.0 J	93.0 J	790.0
Tentatively Identified Compounds (TIC's)				
2-Pentene, 2,3-dimethyl-			220.0 NJA	
3-Penten-2-one, 4-methyl-	280.0 NJA	270.0 NJA		
Naphthalene, 1-methyl-		360.0 NJ	270.0 NJ	150.0 NJ
Dibenzothiophene				160.0 NJ
Chlorophene				150.0 NJ
9,10-Anthracenedione				880.0 NJ
Sulfur, mol. (S ₈)	1000.0 NJ	2400.0 NJ	1900.0 NJ	22000.0 NJ
Stigmat-4-en-3-one	220.0 NJ			
Benzo(b)naphtho[2,3-d]furan		420.0 NJ		
7H-Benz[de]anthracen-7-one				920.0 NJ
TIC's without CAS NO.	10	18	18	19
PESTICIDES (ppb)				
Endosulfan I	2.2 U	—	3.2 P	—
4,4'-DDT	4.4 P	—	—	—
alpha-Chlorodane	2.2 U	—	6.3 P	2.5 P
Aroclor-1260	48.0 P	36.0 JP	53.0 J	22.0 JP
INORGANICS (ppm)				
Aluminum	5660.0	13500.0	13600.0	13700.0
Arsenic	5.2	7.3	4.1 B	14.8
Barium	41.1 B	584.0	504.0	127.0
Beryllium	0.3 U	1.3 B	1.3 B	1.8
Cadmium	0.3 U	0.5 B	—	—
Copper	15.8	42.5	34.4	40.6
Lead	22.3	81.7	62.1	40.1
Manganese	180.0	863.0	833.0	594.0
Potassium	853.0 B	726.0 B	721.0 B	2120.0
Vanadium	15.1	25.7	26.5	27.2
Zinc	68.7	476.0	3150.0	665.0

APPENDIX 1



Site map showing 1989 SSI sample locations. See the following pages for 1989 SSI analytical data.

Table 4-1
RESULTS OF CHEMICAL ANALYSIS OF
FTT-COLLECTED SOIL/SEDIMENT SAMPLES

Sample Collection Information and Parameters	Sample Number							
	S1	S2	S3	S4	S5	S6	S7	S8
Date	3/28/89	3/28/89	3/28/89	3/28/89	3/28/89	3/28/89	3/28/89	3/28/89
Time	1300	1310	1325	1300	1320	1330	1425	1445
CLP Organic Traffic Report Number	ED000	ED001	ED002	ED003	ED004	ED005	ED006	ED007
CLP Inorganic Traffic Report Number	NEBL40	NEBL41	NEBL42	NEBL43	NEBL44	NEBL45	NEBL46	NEBL47
Compound Detected (values in µg/g)								
Volatiles Organics								
acetylene chloride	--	31	51	41	51	--	--	121
acetone	81	341	111	111	151	--	--	191
Semi-volatile Organics								
phenol	--	3801	--	--	--	--	--	--
naphthalene	1901	1801	--	--	2201	1,200	--	--
2-ethylnaphthalene	1801	3301	2201	--	2901	1,300	--	--
acenaphthylene	--	--	--	--	3001	1801	--	--
acenaphthene	1501	1401	--	--	3001	3001	--	--
dibenzofuran	1201	1201	--	--	2401	7201	--	--
fluorene	1101	--	--	--	2201	3401	--	--
phenanthrene	2,200	2,600	4001	8101	4,100	6,100	891	--
anthracene	2001	4201	--	1501	8101	7501	1,100	--
fluoranthene	5,700	5,100	--	1,500	6,200	7,200	1,600	--
pyrene	3,800	3,300	2301	1,1001	4,900	5,200	1,400	--
benzylbenzylthiathalate	1901	1301	--	--	--	--	--	--
benzanthracene	2,600	2,100	--	4601	1,700	3,000	6301	--
chrysene	3,0001	2,3001	--	6601	3,0001	3,5001	6501	--
benzofluoranthene	5,300	3,300	--	6901	4,200	5,400	910	--
benzofluoranthene	2,600	1,700	--	3701	1,900	3,300	6101	--
indeno(1,2,3-cd)pyrene	3,600	1,800	--	4001	1,800	2,600	6101	--
dibenz(a,h)anthracene	1,400	5201	--	2101	6701	7301	841	--
benzofluoranthene	3,500	1,400	--	3501	1,500	2,000	5801	--
Pesticides/PCBs								
Heptachlor	--	--	--	--	1,31	--	--	--
Heptachlor (Warble)	--	621	--	--	951	--	--	--
Aroclor 1260	60,000	2,700	--	--	--	--	--	--
Organics Detected (values in µg/g)								
aluminum	5,830	11,900	9,610	7,820	6,401	6,700	3,210	5,110
arsenic	22,114	20,114	17,214	1,614	9,914	22,114	5,514	5,114
barium	81.5	136	409	101	141	107	41.5	38.4
beryllium	0.438	4	2.2	0.47	0.618	0.858	0.55	0.358
cadmium	1.9	9.7	94	1.9	2.2	3.9	1.4	--

Table 4-1 (Cont.)

Sample Collection Information and Parameters									
	S1	S2	S3	S4	Sample Number			S7	S8
calcium	49,000JA	51,100JA	131,000JA	33,500JA	7,030JA	66,200JA	30,100JA	15,800JA	
chromium	18.2	28.1	21.5	17.8	18.8	23.6	22.7	10.3	
cobalt	7.18	7.78	14.48	3.58	10.28	7.88	7.28	8.28	
copper	53.6	45.3	78.7	35.1	61	48.3	37.9	17.1	
iron	18,700	30,600	111,000	20,000	33,900	23,100	34,900	11,200	
lead	165JM	165JM	44.7JA	287JM	199JM	183JM	25.1JA	12.5JA	
magnesium	24,900JA	8,560JA	10,200JA	7,600JA	2,700JA	11,300JA	9,450JA	9,040JA	
manganese	556	780	4,790	273	897	651	422	131	
mercury	0.2A	0.4A	--	--	0.3A	--	--	--	
nickel	18.6	22.3	49	15.4	19.7	21.3	19.7	18.1	
potassium	7508	2,180	6808	4048	9628	7738	4518	7018	
selenium	--	--	--	--	0.57JBM	0.46JBM	--	--	
silver	--	--	--	1.1JB	--	--	--	--	
sodium	--	--	--	4738	--	--	--	--	
thallium	--	0.92JBM	--	--	--	--	--	--	
vanadium	20.7	46.9	40.6	11.6JB	27.3	18.9	15.1	17.4	
zinc	319JEM	785JEM	10,100JEM	154JEM	328JEM	263JEM	225JEM	65.2JEM	

-- Not detected.

Table 4 : (Cont.)

COMPOUND QUALIFIERS

J
C

DEFINITION

Indicates an estimated value.
This flag applies to pesticide results where the identification has been confirmed by GC/MS. Single component pesticides ≥ 10 ng/ μ L in the final extract shall be confirmed by GC/MS.

INTERPRETATION

Compound value may be semiquantitative.
Compound was confirmed by GC/MS and is quantitative.
See pesticide/PCB listed values.

ANALYTE QUALIFIERS

E
M
A
B
J
U

DEFINITION

Estimated or not reported due to interference. See laboratory narrative.
Spike recoveries outside QC protocols, which indicates a possible matrix problem. Data may be biased high or low. See spike results and laboratory narrative.
Duplicate value outside QC protocols which indicates a possible matrix problem.
Value is real, but is above instrument DL and below CRDL.
Value is above CRDL and is an estimated value because of a QC protocol.
Post-digestion spike for furnace AA analysis is out of control limits (35-1152), while sample absorbance is $< 50\%$ of spike absorbance.

INTERPRETATION

Analyte or element was not detected, or value may be semiquantitative.
Value may be quantitative or semiquantitative.
Value may be quantitative or semiquantitative.
Value may be quantitative or semiquantitative.
Value may be quantitative or semiquantitative.
Value may be semiquantitative.
Value may be semiquantitative.

Source: Ecology and Environment, Inc. 1990.

Table 4-2
RESULTS OF CHEMICAL ANALYSIS OF
FIT-COLLECTED PROCESS WELL SAMPLES

Sample Collection Information and Parameters		Sample Number		
	PW1	Duplicate	PW2	Blank
Date	3/28/89	3/28/89	3/28/89	3/28/89
Time	1335	1335	1330	1030
CLP Organic Traffic Report Number	ED823	ED825	ED824	ED840
CLP Inorganic Traffic Report Number	MDL63	MDL65	MDL64	MECK52
Temperature (°C)	18	18	19	20
Specific Conductivity (μmhos/cm)	900	900	1,000	0
pH	6.47	6.47	6.30	7.03
Compound Detected (values in μg/L)				
Volatile Organics				
chloroform	23	--	--	--
trichloroethene	13	10	7	--
Semivolatile Organics				
bis(2-ethylhexyl)phthalate	--	24	--	--
Analyte Detected (values in μg/L)				
aluminum	21.38	--	--	--
barium	90.38	90.78	95.18	--
calcium	144,000	141,000	127,000	135JB
chromium	58	--	--	--
copper	6.68	--	6.18	--
iron	32.18	43.68	--	--
lead	2.5JBW	2.2JB	--	--
magnesium	48,800	48,200	41,200	--
manganese	11.8JB	12.3JB	12JB	--
nickel	6.48	--	--	--
potassium	5,470	5,370	5,330	--

Table 4-2 (Cont.)

COMPOUND QUALIFIER	DEFINITION	INTERPRETATION
J	Indicates an estimated value.	Compound value may be semiquantitative.
ANALYTE QUALIFIERS		
B	Value is real, but is above instrument DL and below CSDL.	Value may be quantitative or semiquantitative.
J	Value is above CSDL and is an estimated value because of a QC protocol.	Value may be semiquantitative.
W	Post-digestion spike for furnace AA analysis is out of control limits (35-115%), while sample absorbance is <50% of spike absorbance.	Value may be semiquantitative.

Source: Ecology and Environment, Inc. 1990.

APPENDIX 2

TARGET COMPOUND LIST

Volatile Target Compounds

Chloromethane	1,2-Dichloropropane
Bromomethane	cis-1,3-Dichloropropene
Vinyl Chloride	Trichloroethene
Chloroethane	Dibromochloromethane
Methylene Chloride	1,1,2-Trichloroethane
Acetone	Benzene
Carbon Disulfide	trans-1,3-Dichloropropene
1,1-Dichloroethene	Bromoform
1,1-Dichloroethane	4-Methyl-2-pentanone
1,2-Dichloroethene (total)	2-Hexanone
Chloroform	Tetrachloroethene
1,2-Dichloroethane	1,1,2,2-Tetrachloroethane
2-Butanone	Toluene
1,1,1-Trichloroethane	Chlorobenzene
Carbon Tetrachloride	Ethylbenzene
Vinyl Acetate	Styrene
Bromodichloromethane	Xylenes (total)

Base/Neutral Target Compounds

Hexachloroethane	2,4-Dinitrotoluene
bis(2-Chloroethyl) Ether	Diethylphthalate
Benzyl Alcohol	N-Nitrosodiphenylamine
bis (2-Chloroisopropyl) Ether	Hexachlorobenzene
N-Nitroso-Di-n-Propylamine	Phenanthrene
Nitrobenzene	4-Bromophenyl-phenylether
Hexachlorobutadiene	Anthracene

Pesticide/PCB Target Compounds

alpha-BHC	Endrin Ketone
beta-BHC	Endosulfan Sulfate
delta-BHC	Methoxychlor
gamma-BHC (Lindane)	alpha-Chlordane
Heptachlor	gamma-Chlordane
Aldrin	Toxaphene
Heptachlor epoxide	Aroclor-1016
Endosulfan I	Aroclor-1221
4,4'-DDE	Aroclor-1232
Dieldrin	Aroclor-1242
Endrin	Aroclor-1248
4,4'-DDD	Aroclor-1254
Endosulfan II	Aroclor-1260
4,4'-DDT	

Inorganic Target Compounds

Aluminum	Manganese
Antimony	Mercury
Arsenic	Nickel
Barium	Potassium
Beryllium	Selenium
Cadmium	Silver
Calcium	Sodium
Chromium	Thallium
Cobalt	Vanadium
Copper	Zinc
Iron	Cyanide
Lead	Sulfide
Magnesium	

APPENDIX 3

DATA QUALIFIER DEFINITIONS

<u>QUALIFIER</u>	<u>DEFINITION ORGANICS</u>	<u>DEFINITION INORGANICS</u>
U	Indicates that the compound was analyzed for but not detected above the CRQL. The CRQL must be corrected for any dilution and percent moisture.	Indicates that the compound was analyzed for but not detected above the instruments detection limit (IDL).
J	Indicates an estimated value. This flag is used when estimating a concentration for TICs where a 1: 1 response is assumed or when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the CRQL but greater than zero or when the retention time data indicate the presence of a compound that meets the pesticide/Aroclor identification criteria and the result is less than the CRQL but greater than zero. Used in data validation when the quality control data indicate that a value may not be accurate.	Indicates an estimated value. Used in data validation when the quality control data indicate that a value may not be accurate.
UJ	The analyte was analyzed for but not detected. The associated value is an estimate and may be inaccurate or imprecise.	The analyte was analyzed for but not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	Rejected data. The QC parameters indicate that the data is not usable for any purpose.	Rejected data. The QC parameters indicate that the data is not usable for any purpose.
C	This flag applies to pesticide results where the identification has been confirmed by GC/MS.	Method qualifier indicates analysis by Manual Spectrophotometry.
CA	Not Used	Method qualifier indicates analysis by Midi-Distillation Spectrophotometry.

CV	Not Used	Method qualifier indicates analysis by Cold Vapor AA.
B	This flag is used when the analyte was found in the associated blank as well as the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action	The reported value is less than the contract required detection limit (CRDL) and greater than the IDL.
E	This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. All extracts containing compounds exceeding the calibration range must be diluted and analyzed again.	The reported value is estimated because of the presence of interference.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.	Not Used
P	This flag is for a pesticide/Aroclor target analyte when the percent difference for detected concentrations is greater than 25% between the two columns. The lower of the two values is reported on the Form 1 and flagged with a 'P'.	Method qualifier indicates analysis by Inductively Coupled Plasma (ICP) when hotplate digestion is used.
PM	Not Used	Method qualifier indicates analysis by ICP when microwave digestion is used.
M	Not Used	Duplicate injection precision not met (a QC parameter).
A	This flag indicates that a TIC is a suspected aldol-condensation product formed by the reaction of the solvents used to process the sample in the laboratory.	Method qualifier indicates analysis by Flame Atomic Absorption (AA) when hotplate digestion is used.

AM	Not Used	Method qualifier indicates analysis by Flame AA when microwave digestion is used.
AV	Not Used	Method qualifier indicates analysis by Automated Cold Vapor AA.
AS	Not Used	Method qualifier indicates analysis by Semi-Automated Spectrophotometry.
F	Not Used	Method qualifier indicates analysis by Furnace Atomic Absorption (AA) when hotplate digestion is used.
FM	Not Used	Method qualifier indicates analysis by furnace AA when Microwave Digestion is used.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification". This flag is used only for TICs	Spike sample recovery not within the limits (a QC parameter).
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated value represents the approximate concentration.	Not Used
S	Not Used	The reported value was determined by Method of Standard Additions (MSA).
W	Not Used	Post-digestion spike for furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance (a QC parameter).
*	Not Used	Duplicate analysis not within control limits. (a QC parameter).

+	Not Used	Correlation coefficient for the MSA is less than 0.995 (a QC parameter).
T	Not Used	Method qualifier indicates Titrimetric analysis.
NR	The analyte was not required to be analyzed.	The analyte was not required to be analyzed.